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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,563	01/03/2001	Takahiro Saito	33773M013	9799

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EXAMINER

GOODMAN, CHARLES

ART UNIT	PAPER NUMBER
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3724

DATE MAILED: 09/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/752,563

Applicant(s)

SAITO, TAKAHIRO

Examiner

Charles Goodman

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 January 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.84(h)(5) because Figure 1 shows modified forms of construction in the same view, e.g., the whole surface imaging means 58. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - i. The following phrases lack clear antecedent basis: (claim 1) "the cutting streets", "the mounting position", "the surface", "the positions of said cutting streets", and "the time"; (claim 2) "the back surface"; (claim 5, l. 2) "said...gaps" (emphasis added).
 - ii. In claim 1, ll. 17 and 22, the term "relatively" should read -- relative --. The same applies to similar instances in the claims.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. As best understood, claims 1, 2, 5, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Freund et al and Turner.

Freund et al discloses a method of scribing, i.e. cutting, a CSP substrate comprising all the claimed steps including, *inter alia*, mounting plural CSP substrates (56) on a single frame without overlapping them one upon the other, each CSP substrate having the plural rectangular regions as claimed; recognizing step anticipated by viewing by eyes and an inherent storing the mounting position step (further described hereinafter); securing said frame on a chuck (42); an inherent imaging, recognizing, and storing step (further described hereinafter); an inherent positioning step with respect to the precision imaging means (further described hereinafter); and cutting each of said CSP substrates by relative movement of a cutting means (80). See whole patent.

Regarding the inherent steps noted above, Freund et al clearly teaches that the substrates are cut by the exemplary method as described and taught in Turner which has been incorporated into the disclosure of Freund et al by reference. See c. 1, l. 20 - c. 2, l. 7. Thus, the combination of Freund et al and Turner form the basis of this anticipation rejection. Initially, it is noted that in the art of cutting substrates, it is well recognized in the art that the cutting operation is computer controlled (which includes precision image means, means for viewing the image, storage of information, means allowing for manual input of data, etc.) for automatic cutting operation taking into consideration the relative positions of the mounted substrate and the cutting means. This is advantageous in that a relatively high degree of precision is required in forming the individual rectangular regions. In that regard, Turner clearly teaches the above noted inherent steps in Freund et al. The cutting method taught by Turner includes the steps of recognizing the mounted position of the substrate (34) on a frame (e.g. at 32 in Fig. 7) and storing the positions thereof (e.g., computer memory); imaging the surface of the substrate by a precision imaging means (14), recognizing the positions of the cutting streets and analyzing the obtained image, and storing the positions of the cutting streets (c. 6, ll. 41-55); and positioning the chuck (18) to which the frame is secured based upon the stored mounting position to thereby cut the substrate along the streets, all these steps being carried out by the stored program and data (manual and electronically obtained) in the computer system. See Figs. 10A-17.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. As best understood, claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freund et al and Turner in view of Yoshii et al '990.

Regarding claim 3, Freund et al and Turner discloses the invention substantially as claimed except for plural mounting position indications on the tape. However, Yoshii et al '990 teaches that it is known in the art to provide the substrate supporting surface of a frame (e.g. 14a or 14b) with plural mounting position indications (e.g. 18, 19) for the purpose of providing accurate desired alignment of the substrate (e.g. 11 or 12) on the frame. Figs. 2-3, c. 3, ll. 51-64. Yoshii et al '990's teachings at least suggest that it would be advantageous to provide the support surface with position indications to thereby assist in the alignment of the substrate thereon. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the method of Freund et al and Turner with the plural mounting position indications on the tape as suggested by Yoshii et al '990 in order to assist alignment of the plural substrates on the frame.

Regarding claim 7, Freund et al and Turner discloses the invention substantially as claimed except for a pick-up means. However, it is old and well known in the substrate cutting art to provide a pick-up means to automatically pick up the individual CSPs cut from the cutting station to thereby transfer the same for further processing. In

that regard, Yoshii et al '990 teaches the method step of using a pick-up means (81) to pick up individual CSPs and to transfer the same to storage trays (86) for further processing. Fig. 1, c. 8, ll. 50-62. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the method of Freund et al and Turner with the pick-up means as taught by Yoshii et al '990 in order to facilitate further processing of the cut CSPs.

8. As best understood, claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freund et al and Turner in view of Nishida.

Freund et al and Turner discloses the invention substantially as claimed except for a whole-surface imaging means. However, Nishida teaches a whole-surface imaging means (3) for the purpose of assisting accurate alignment of the substrate (100) by the imaging means (e.g. 18) by providing a shape comparison for specifying the cut lines. See whole patent. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the method of Freund et al and Turner with the whole-surface imaging means as taught by Nishida in order to assist accurate alignment of the substrates for the subsequent cutting.

9. As best understood, claims 1, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiwata et al in view of Freund et al.

Ishiwata et al discloses the invention substantially as claimed including the method steps of mounting a CSP substrate (14) on a frame (13); recognizing the mounting position of the substrate (e.g. by eyes) and storing the mounting position (e.g. by the computer control inherently included in this method as is well known in the art which includes memory storage and further exemplified by the electronic controls in the

specification and the keypad shown in Fig. 1); securing the frame onto a chuck (e.g. 11); imaging by imaging means (18), recognizing, and storing (e.g. by the above mentioned inherent computer control); positioning the chuck based on stored information; and cutting by cutting means (19). See whole patent. However, Ishiwata et al lacks mounting of plural substrates on a single frame without overlapping them, i.e. in Ishiwata et al, the CSP substrate is a disc shaped semiconductor wafer. In that regard, Freund et al teaches a method of cutting substrates in which plural strips (56) are mounted on a single frame (40) without overlapping them. See e.g. Fig. 7. Freund et al's teachings clearly suggest that mounting of plural strips on a single frame is obvious to the ordinary artisan in the art of substrate cutting or processing for instances in which processing of strips of substrates (or strips from a whole wafer substrate) is desired. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the method of Ishiwata et al with the mounting of plural substrates as taught by Freund et al in order to facilitate cutting of plural strips of substrates.

10. As best understood, claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiwata et al in view of Freund et al as applied to claims 1, 5, and 6 above, and further in view of Yoshii et al '990.

Regarding claim 3, the modified method of Ishiwata et al discloses the invention substantially as claimed except for plural mounting position indications on the tape. However, Yoshii et al '990 teaches that it is known in the art to provide the substrate supporting surface of a frame (e.g. 14a or 14b) with plural mounting position indications (e.g. 18, 19) for the purpose of providing accurate desired alignment of the substrate

(e.g. 11 or 12) on the frame. Figs. 2-3, c. 3, ll. 51-64. Yoshii et al '990's teachings at least suggest that it would be advantageous to provide the support surface with position indications to thereby assist in the alignment of the substrate thereon. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the modified method of Ishiwata et al with the plural mounting position indications on the tape as suggested by Yoshii et al '990 in order to assist alignment of the plural substrates on the frame.

Regarding claim 7, the modified method of Ishiwata et al discloses the invention substantially as claimed except for a pick-up means. However, it is old and well known in the substrate cutting art to provide a pick-up means to automatically pick up the individual CSPs cut from the cutting station to thereby transfer the same for further processing. In that regard, Yoshii et al '990 teaches the method step of using a pick-up means (81) to pick up individual CSPs and to transfer the same to storage trays (86) for further processing. Fig. 1, c. 8, ll. 50-62. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the modified method of Ishiwata et al with the pick-up means as taught by Yoshii et al '990 in order to facilitate further processing of the cut CSPs.

11. As best understood, claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiwata et al in view of Freund et al as applied to claims 1, 5, and 6 above, and further in view of Nishida.

The modified method of Ishiwata et al discloses the invention substantially as claimed except for a whole-surface imaging means. However, Nishida teaches a whole-surface imaging means (3) for the purpose of assisting accurate alignment of the

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substrate (100) by the imaging means (e.g. 18) by providing a shape comparison for specifying the cut lines. See whole patent. Thus, it would have been obvious to the ordinary artisan at the time of the instant invention to provide the modified method of Ishiwata et al with the whole-surface imaging means as taught by Nishida in order to assist accurate alignment of the substrates for the subsequent cutting.

Conclusion

12. Kaneda et al, Yoshii et al '499, Nambu et al, Cawley, McKenna et al, Boucher et al, Azuma et al, Tsuji et al, Piper, Loomis et al, Smith et al, Haghiri-Tehrani, Hancock et al, Fuwa et al, Oglesbee, Ono, Gerber et al, Zimring, Fredriksen et al, Hampton et al, and Camasta are cited as pertinent art.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Goodman whose telephone number is (703) 308-0501. The examiner can normally be reached on Monday-Thursday between 7:30 AM to 6:00 PM EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan Shoap, can be reached on (703) 308-1082.


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In lieu of mailing, it is encouraged that all formal responses be faxed to 703-872-9302. Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is 703-308-1148.


Charles Goodman
Primary Examiner
AU 3724

cg 
September 15, 2002

CHARLES GOODMAN
PRIMARY EXAMINER